USER MANUAL

RASMUS 1
RADAR SIGNAL MULTIPLYING SYSTEM

RTE RADAR TARGET ENHANCER

rasmus®

MARINE

Contents

Introduction...…….3

Safety Precautions…….……..3

Instrument Description..……..3

Certification..…….4

Delivery Set.……..……...4

Control Unit Functions……5

Control Unit..……5

Setting into Operation…….6

Technical Data.……7

Warranty...……7

Declaration of Conformity.....…….8

Drilling Templates.……..……9

Notes..…..……11

Address..…..……12

Introduction

We highly appreciate your confidence in and choice of the Dantronik-Marine rasmus GmbH product. This User Manual provides essential information related to function, installation, mounting, servicing, and troubleshooting of your **rasmus 1**. Therefore, prior to use of the instrument, read this Manual thoroughly and then follow it accurately. **rasmus 1** is designed to resist all and operate reliably in extreme weather conditions.

Safety Precautions

Use the instrument for the intended purpose only, note supply voltage data, and connect the instrument to an authorized voltage supply only. This is the way to ensure the reliable and safe operation. Any different way to use the instrument may cause unit damage and risks during use.

- **rasmus 1** has no wearing parts. So never open the instrument and never try to repair it by yourself.
- This instrument is designed to increase your safety. So handle it carefully. If suspecting that the instrument may be not used further for the intended purpose, switch it out off and send it back to Dantronik-Marine rasmus GmbH for inspection.
- On activation, **rasmus 1** sends out radar frequencies. Avoid direct exposure to this. So keep yourself at a safe distance of at least 0.5 m apart!
- This is a safety relevant device, which runs a self-test after power on. You should initiate it on regular basis. (See the self-test description in paragraph “Setting into Operation”).

Instrument Description

r**asmus 1** is an active, electronic Radar Reflector, an active Radar Target Enhancer, designed to improve the navigation safety. On receiving a radar signal when in standby mode, the instrument is activated automatically and sends back an electronically amplified echo to the radar display screen of the transmitter. On heavy-traffic seaways and mainly during the dark time and in bad weather conditions such as fog, storm, and heavy rain, **rasmus 1** allows small boats (motorboats, yachts, and rubber boats) to be reliably detected by ships’ radar screens.
Additionally an audio signal is integrated to indicate a radar signal is received – when switched on- by buzzing sound. This is in particular as well recommended for yachtsmen going on one hand tour as for sailing with small crews!
Note: The supply voltage should be within the range of 12 to 24 VDC to ensure compliance with all specified characteristics and essential technical requirements.

Certification

The instrument is EC Directive R&TTE certified and has been tested to:
EN 60215, EN 60945, EN ETS 301 843-1, and intern. recommendation ITU-R M.1176 with reference to: Reg TP SSB OR-N006
Tested and approved by BSH (Federal Naval Hydrographic Office, Germany)

CE 0560 !

According to the EC Directive, this product is approved for use in the following countries:

•approved for unrestricted use
X – not applied for Notification
Y – user's application for national permit to use is mandatory

Countries:
B – Belgium •
IRL – Ireland Y
P – Portugal •
D – Germany •
I – Italy •
IS – Iceland •
CH – Switzerland X
E – Spain Y
L – Luxemburg X
S – Sweden •
FIN – Finland Y
GR – Greece •
NL – the Netherlands •
UK- United Kingdom •
F – France •
A – Austria X

Delivery Set

Instrument includes:

1. Antenna Unit
2. Control Unit
3. Cable (15-m and 10-m long sections between the control unit and antenna, respectively, the control unit and battery).
4. Battery Connector Terminals

Description of the picture

Indication: Power On: Standby	Indication: Buzzer On
On/Off Switch	Indication: Radar Contact Activated
	Buzzer Switch On/Off
Fuse	Cable connecting to the onboard battery
Wiring diagram	Cable connecting from the Antenna to the Control Unit

Function of the Control Unit

Switch “POWER”
By pressing the switch button, power is on. **rasmus 1** is now in the standby mode. Green indicator “POWER” – the LH light-emitting diode (LED) – starts blinking. By pressing again, power is off.

Red LED “RADAR”
This LED blinks if **rasmus 1** is hit by a radar beam.

Switch “BUZZER»
This switch allows audio signal activation. Additionally, RH LED blinks green if “BUZZER” is activated. In case of radar contact, the buzzing sound is active.

Installation

Installation needs to be done by trained personnel, with following strictly installation instructions!

Antenna Unit (1)

The antenna unit shall be mounted when at a fixed moorage or winter stay. It may be fixed with 8 screws or wood screws to any suitable or special **rasmus 1** attachment (rigging), e.g. on the mast top, in aft basket, or on a flat surface (the cabin roof). Observe the rule: the higher the mounting point, the larger the effective range. So avoid mounting below the height of 2 m above water level! Further, if possible: Please avoid as far as possible that Antenna is shaded by materials or superstructures.
When mounting the antenna, be careful to prevent contact corrosion damages in between the instrument and a bearing surface. So we recommend applying a packing rubber collar (rigging). Be careful also to keep the distance of at least 1 m from metallic items for perfect operation. Lay the cable from the control unit to the antenna so that it is clear of and resistant to wear factors to ensure damage protection. To ensure the instrument to operate perfectly, never shorten or extend the cable. If trimming is required, please contact the manufacturer so as to avoid loss of warranted benefits.

Control Unit (2)
The onboard mains must be voltage free when connecting to it during installation! It is advisable to place the control unit in the cabin (wheel house) or near the boat rudder. If possible, it is necessary to protect it against water splashes, and to fix it with four screws or wood screws. The control unit should be installed in a (closed) cabin, wheelhouse, or near a control board. The power cable should be connected to an onboard battery or mains having a nominal voltage of 12 to 24 VDC. Please, observe the voltage polarity! Caution: the short circuit causes the risk of damage to the onboard battery. Take care that the battery is in a good charged state.

Setting into Operation
After mechanical and electrical installation, the functional tests shall be run. Firstly, energize the system by pressing switch “POWER“. Blinking of green LED indicates that power is on.

Test 1 (without radar contact)
Simultaneously with the green LED, the Red LED “RADAR” blinks for a second to indicate that the instrument operates properly. This is self-testing of your **rasmus 1**, running each time, the system is started.
The instrument is now in the standby mode.

Functional test (with radar contact)
After successful self-testing, red LED blinks to indicate when the instrument has radar contact. In these cases the instrument is active. If “BUZZER” is activated by switch pressing, the buzzing sound is active and the associated green LED blinks.

In case of malfunctioning, please check all plug-in connections, wiring, and polarity. If everything is connected properly, the battery power must be checked. If the battery is well-charged check the fuse of the control unit - and, if required, replace it (5 × 20 mm low-current fuse, 1A, of central slow type).

Technical Data

Consumption current	in passive mode	≤70 mA
	in active mode	≤380 mA
Supply voltage		12-24 VDC
Frequency		9.3-9.5 GHz
Effective range		0.1-12 nm (depending on the height and place of installation)
Gain		58 dB typ.
Coverage	in azimuth	360°
	in elevation	±12.5°
Output pulse power		0.8 W typ. (E.I.R.P. output)
		0.6 W min.
Receiver sensitivity		better than –48 dBm (E.I.R.P.input)
Operating temperature		–30 to +60 °C
Storage temperature		–50 to +65 °C
Antenna length		480 mm
Diameter (without mounting plate)		78 mm
Mounting plate diameter		80 mm
Antenna weight		1.3 kg
Antenna waterproof accord.		IP 68
Control unit: dimensions		68×115×49 mm
Control unit waterproof accord.		IP 66
Control unit weight		0.3 kg

(We reserve the right to alterations)

Warranty

Within the scope of the manufacturer's terms and limited to this, we warrant the proper operation of the instrument, provided that all the instructions of this Manual are fully met, the instrument is not mechanically damaged, and no evidence of opening and repair is found. The warranty period is 3 years from the date of sale/date of invoice. We warrant that the improperly operating instrument will be subject to a selective repair or replaced by a new one. Our liability is limited to the purchase value of our device. All further going damages and claims are excluded.

The instrument must be sent directly at our address, with the attached invoice copy and brief defect description.

We return the instrument also directly at the customer's address.

Declaration of Conformity

Declaration of Conformity

I hereby declare that the product

Dantronik-Marine, **rasmus1**
(name of product, type or model, batch or serial number)

is conformity with the essential requirements as described in Directive

1999/5/EC
and satisfies all the technical regulations applicable to the product within this directive

Recommendation ITU-R.M. 1176 (reg. TP SSB OR-006)

RN ETS 301 843-1

IEC 945/EN60945

IEC 215/EN60215

Title(s) of regulations, standards, etc.

MANUFACTURER:

Address:

Dantronik-Marine rasmus GmbH
Fahrensodde 20

D-24944 Flensburg
GERMANY

- Point of contact:

E. Wabbel, +49 461 31 33 -109, fax ext. 200 ew@dantronik-marine.de

(Name, telephone, fax number and e-mail)

Flensburg, den 22. May 2003

Dantronik-Marine rasmus GmbH

DRILLING TEMPLATES

Antenna unit
Figure

DRILLING TEMPLATES
Control Unit
Figure

Notes

Address:
Marine rasmus GmbH
Fahrensodde 20
D-24944 Flensburg
Germany
Telephone: +49 461 31 33 0
Fax: +49 461 31 13 200
Rev.: May 2003
www.dantronik-marine.de
e-mail: info@dantronik-marine.de